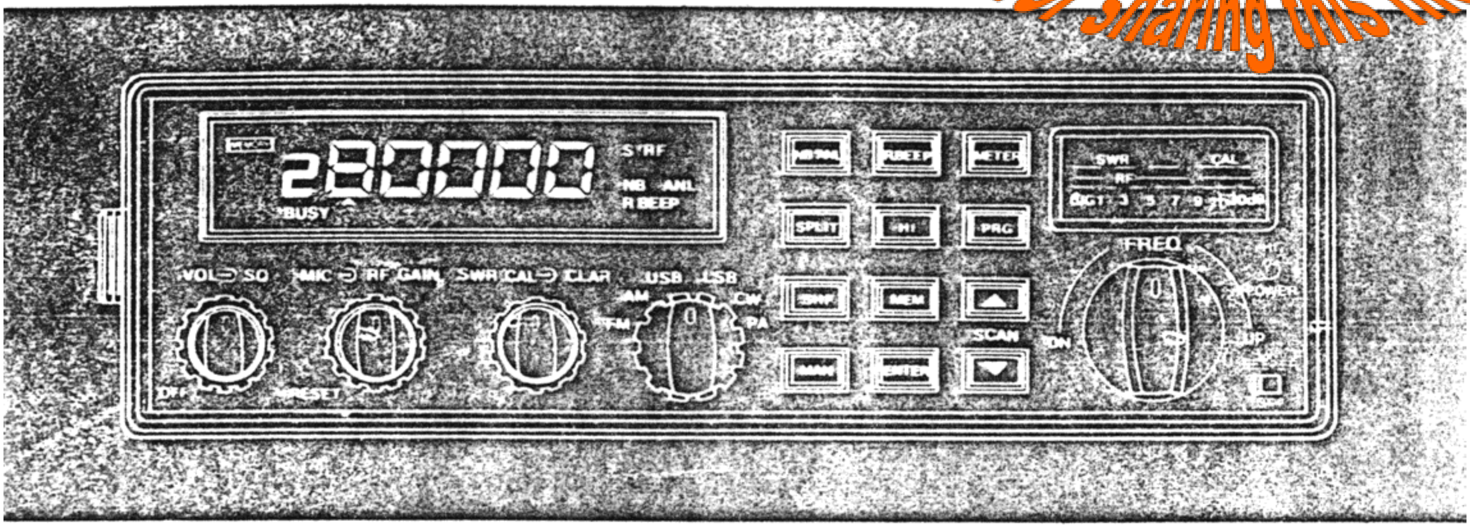


RCI-2900

AM/FM/SSB/CW MOBILE TRANSCEIVER

SERVICE MANUAL

ALIGNMENT PROCEDURE

A. PLL Adjustment

1. Turn CLARIFIER in the middle position.

2. Put test probe of counter on TP4, unit in 28.0000MHz (RX mode)

   In AM , adjust L21 to read frequency 17.305MHz +- 50Hz
   In USB, adjust L22 to read frequency 17.3075MHz +- 50Hz
   In LSB, adjust L23 to read frequency 17.3025MHz +- 50Hz

3. Put test probe of counter on TP6, unit in TX mode

   In AM , adjust L27 to read 10.695MHz +- 30Hz
   In USB, adjust L28 to read 10.6925MHz +- 30Hz
   In LSB, adjust L29 to read 10.6975MHz +- 30Hz

4. Put test probe of multimeter on TP7, unit in 28.0000MHz (RX mode)

   In AM, adjust L17 to read DC 0.85V

5. Put test probe of oscilloscope on TP7, unit in 28.0000MHz (RX mode)

   In AM, adjust L18 to maximun output.

6. Unit in USB TX mode (MOD off)

   Put current meter in TP3 and TP2 adjust VR11 to read 20mA on current meter
   Put current meter in TP3 and TP1, first minimize of VR9 then adjust VR10
   to read 50mA and adjust VR9 to read 100mA.

B. TX adjustment

1. Set unit in AM TX (MOD off) mode, push H/L key in H position the power HI LED will illuminate, adjust L36, L46, L48, L49, L50 to get stable and maximum power output between 28 - 29.999MHz. Then adjust VR13 to get all TX power within 8W + 1.5W

2. Push H/L in L position to get 1W +- 0.5W in all TX power

3. Return H/L to HI position set frequency in 28.0000MHz, push METER keypad to have S/RF on LCD display. Set unit in AM TX (MOD off) mode, adjust VR8 to read RF line right in the middle (between red and green line) of S/RF meter.

4. Set unit in AM TX (MOD on, 1KHz, 30mV) mode turn MIC GAIN full clockwise adjust VR14 to read 90% - 100% in modulation meter and distortion must not exceed 10%

5. Set unit in AM TX (MOD off) mode, R. Beep ON position, then release PTT switch scope will have 0.5 sec of Roger Beep tone. Select R.Beep off set unit from TX to RX will no receive R. Beep tone.

6. Set unit in USB TX (MOD off) mode, adjust VR7 to minimum carry power output

7. Set unit in TX (MOD on) mode, adjust VR12 to read 25W - 30W in power meter and check transmit frequency +1KHz +- 250Hz

8. Set unit in LSB TX (MOD on) mode check power meter to read 25W - 30W for all frequency and check transmit frequency -1KHz +- 250Hz

9. Set unit in FM TX (MOD on) adjust VR6 to read between +- 2K - +- 4KHz on modulation meter. And check distortion lower than 10% (Power output and frequency same as AM mode)

10. Set unit in P.A. mode (TX, MOD on) the signal from P.A. circuit, SPK should have more than 1KHz, 4V output (MIC GAIN fully clockwise) Turn the MIC GAIN counter clockwise slowly the P.A. output will reduce.

C. RX adjustment

1. Set unit in AM mode, squelch in MIN, RF GAIN fully clockwise, unit and RF SG select 28.0000MHz and 29.9999MHz (check two channel). Adjust L7, L8, L9, L10, L11, L12, L3, L20, L4, L5 to make maximum AF output. Input 6dB from RF SG the AF output must more than 2V, sensitivity must not lower than 10dB S+N / N.

2. Set RF SG in 60dB, when set AF output signal to 2V the distortion must not exceed 10%

3. Set unit in FM mode RF SG in FM mode, adjust L6 to get maximum AF output, minimum distortion attenuate VOL to 2V output the distortion must not exceed 10%. In RF SG input 6dB the sensitivity must not lower than 20dB S+N / N.

4. Set unit in USB mode, RF SG and unit select the same channel. But set RF SG in MOD off position and also frequency higher then unit for 1KHz. Input 6dB from RF SG adjust L14, L15 to get maximum AF output and signal output must more than 2V (set CLARIFIER in the middle position).

5. Set unit in LSB mode, check procedure same as USB, but set RF SG frequency lower 1KHz than unit frequency.

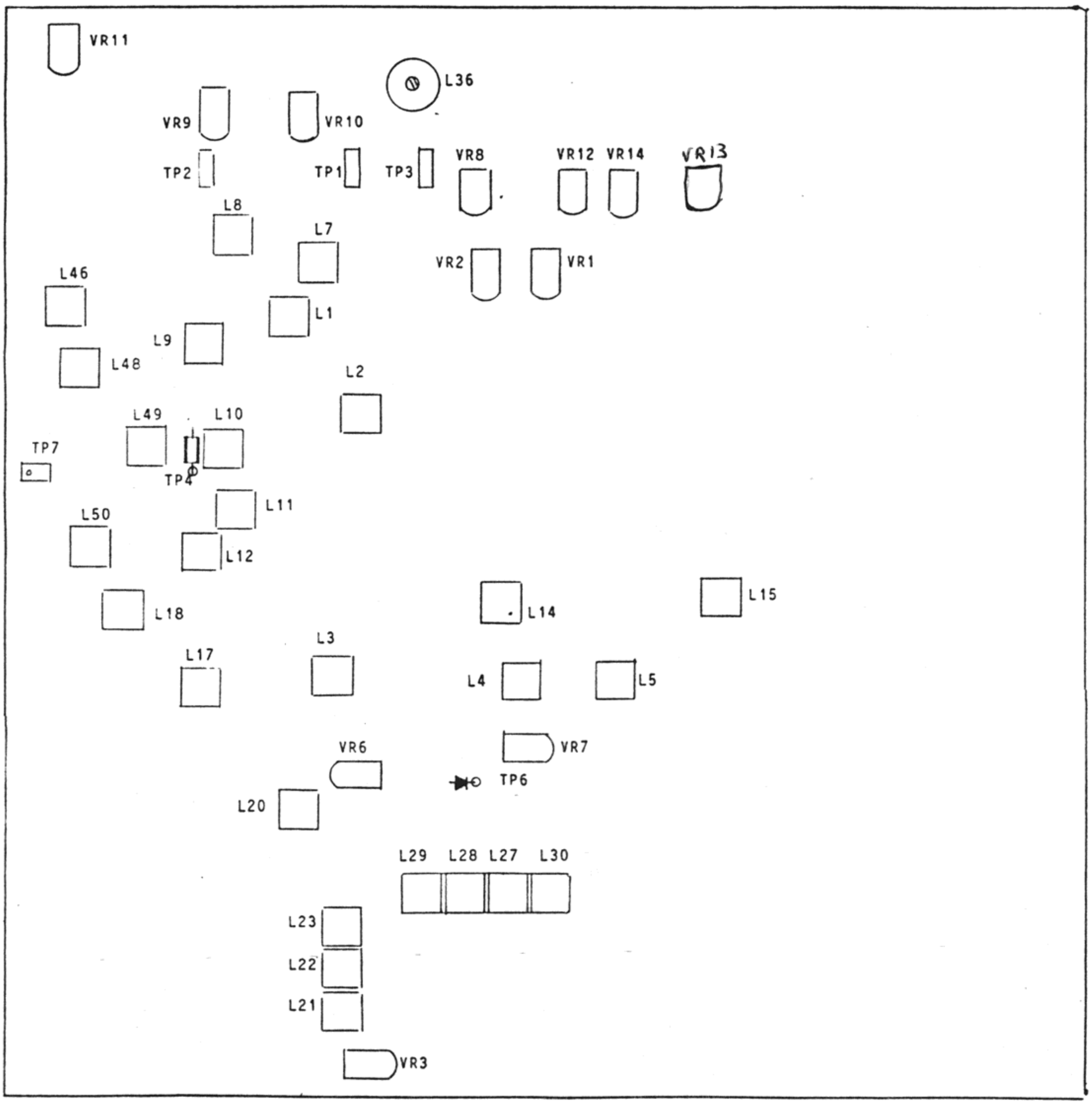
6. Set unit in CW mode RF SG and unit select the same frequency in MOD off position input 6dB from SG to adjust L30 until no AF output

7. Set unit and RF SG in 28.0000MHz USB mode LCD display S/RF, set 45dB input in LCD select 45dB in RF SG output, adjust VR1 to read S/RF meter in the middle of " 9 ". Set SQ fully clockwise, set 66dB in RF SG adjust VR4 to AF just have output.

8. Unit and RF SG select the same 28.0000MHz USB mode LCD display S/RF, set 45dB input in RF SG (SQ counter clockwise) adjust VR2 to read meter in " 9 ". Fully clockwise SQ set 66dB in RF SG input adjust VR3 to AF just have output.

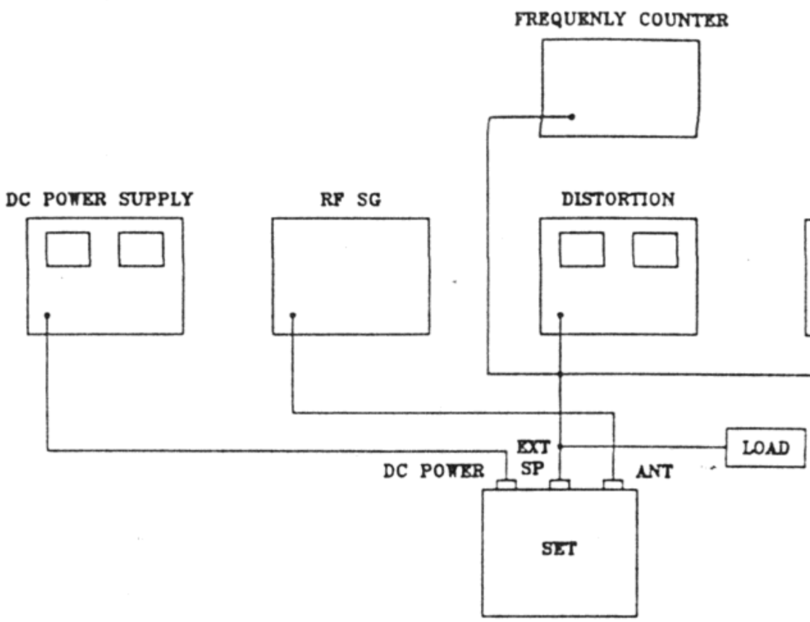
9. Set unit in 28.000MHz RF SG in 29.9999MHz input 66dB push keypad NB/ANL until LCD display NB/ANL. Use multimeter to test D2 cathode adjust L1, L2 to get maximum DC voltage.

Main P.C. Board



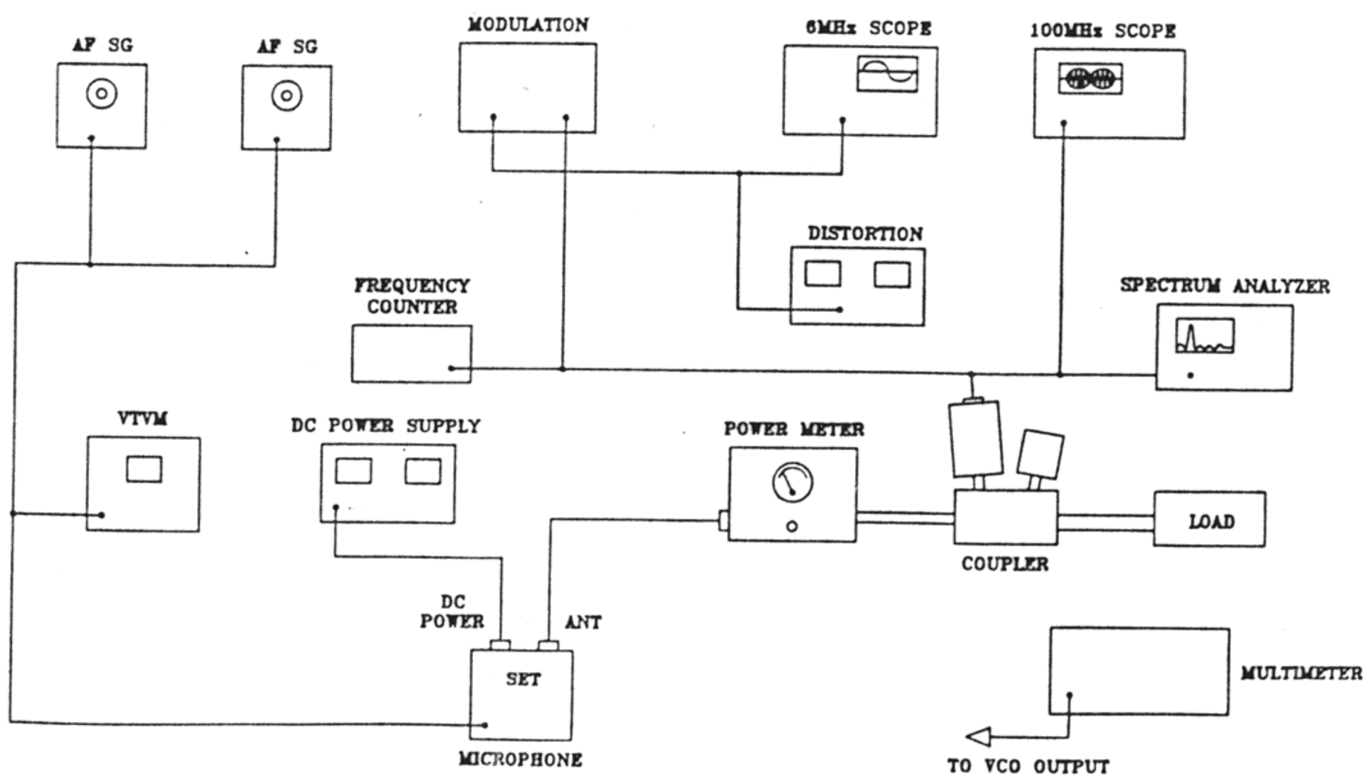
TEST EQUIPMENT SCHEMATIC DIAGRAM

RX



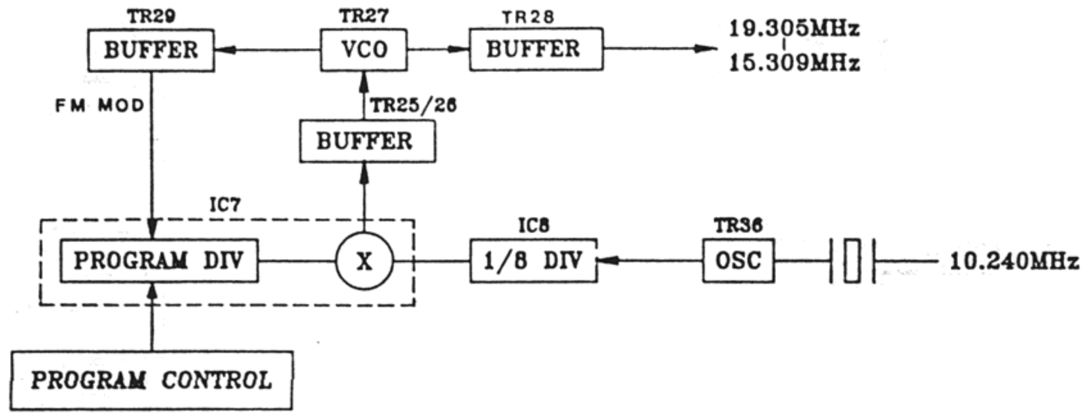
TEST EQUIPMENT SCHEMATIC DIAGRAM

TX

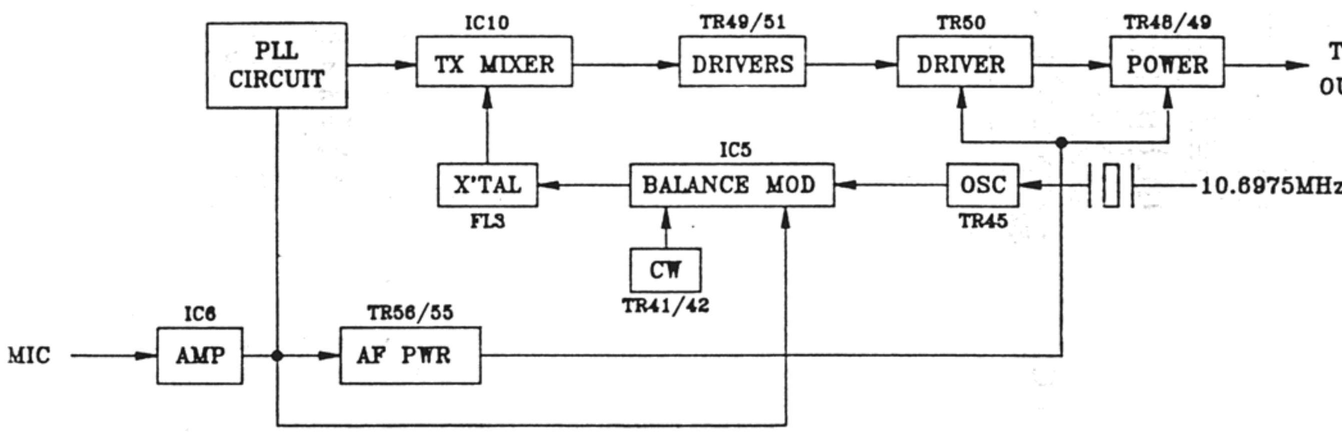


BLOCK DIAGRAM

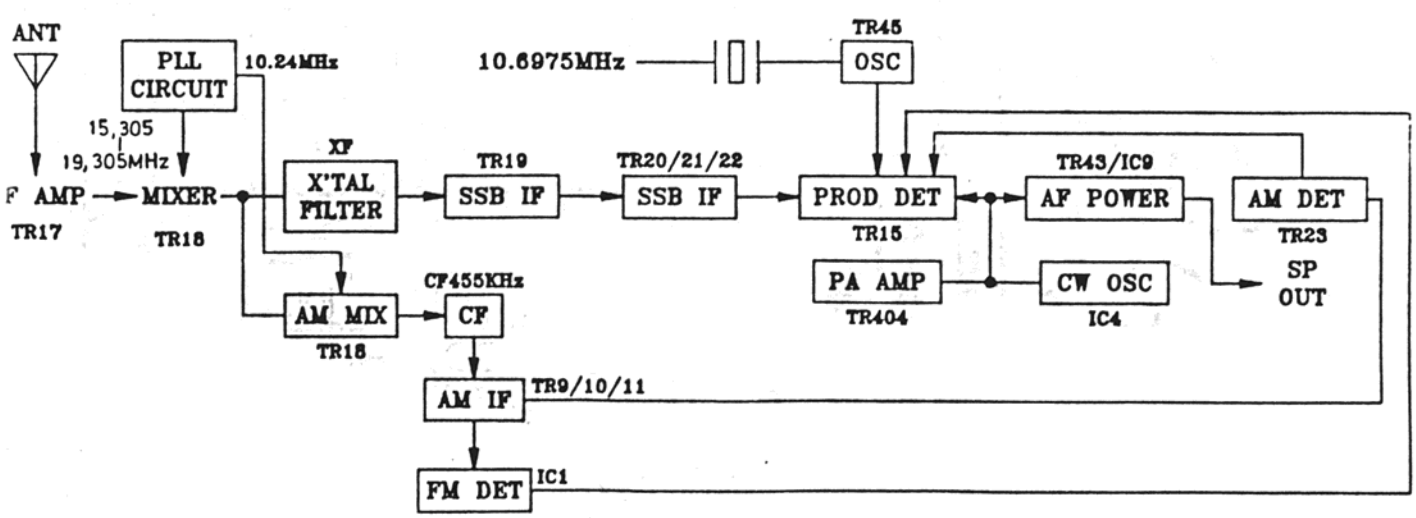
PLL CIRCUIT



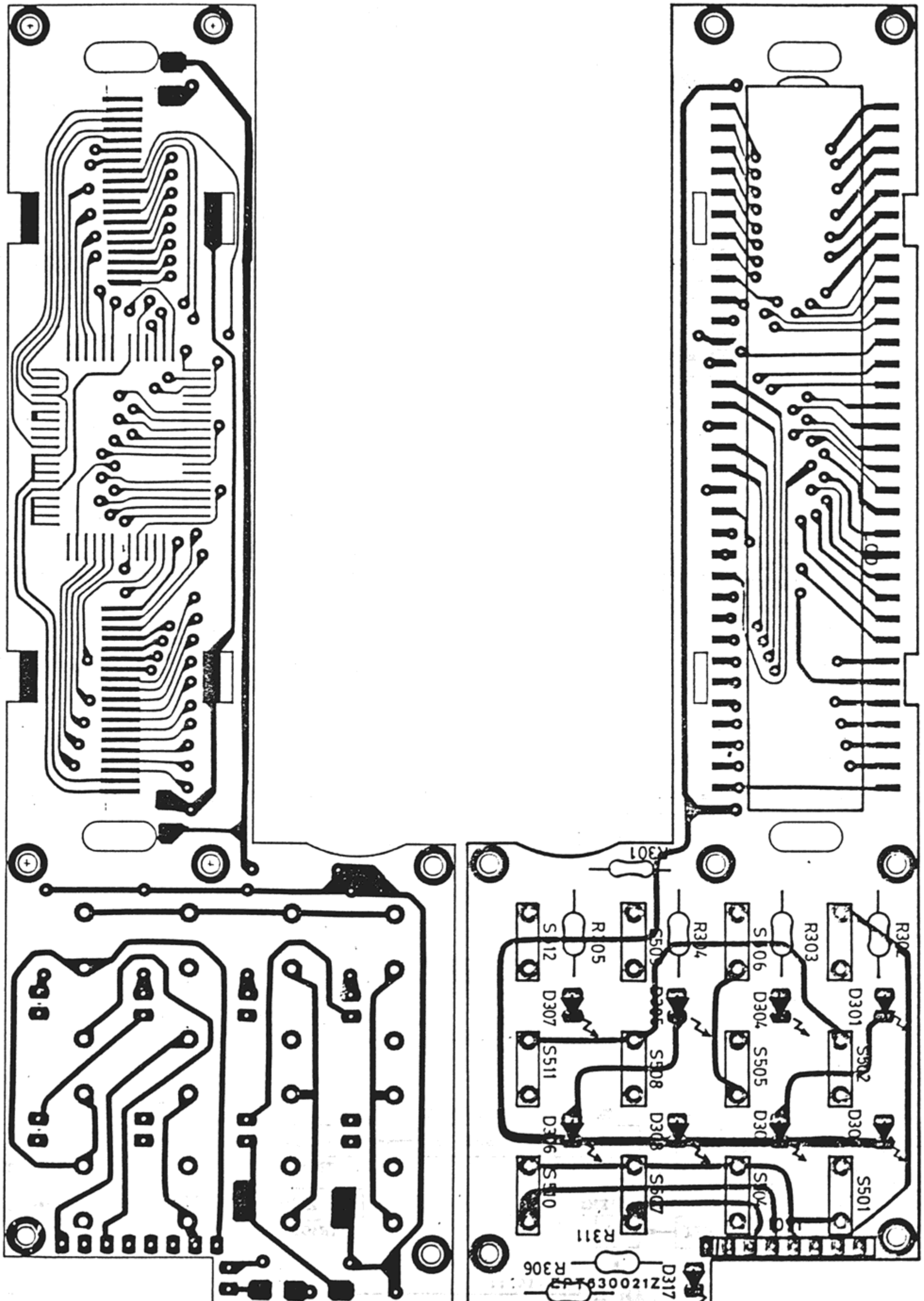
TRANSMITTER

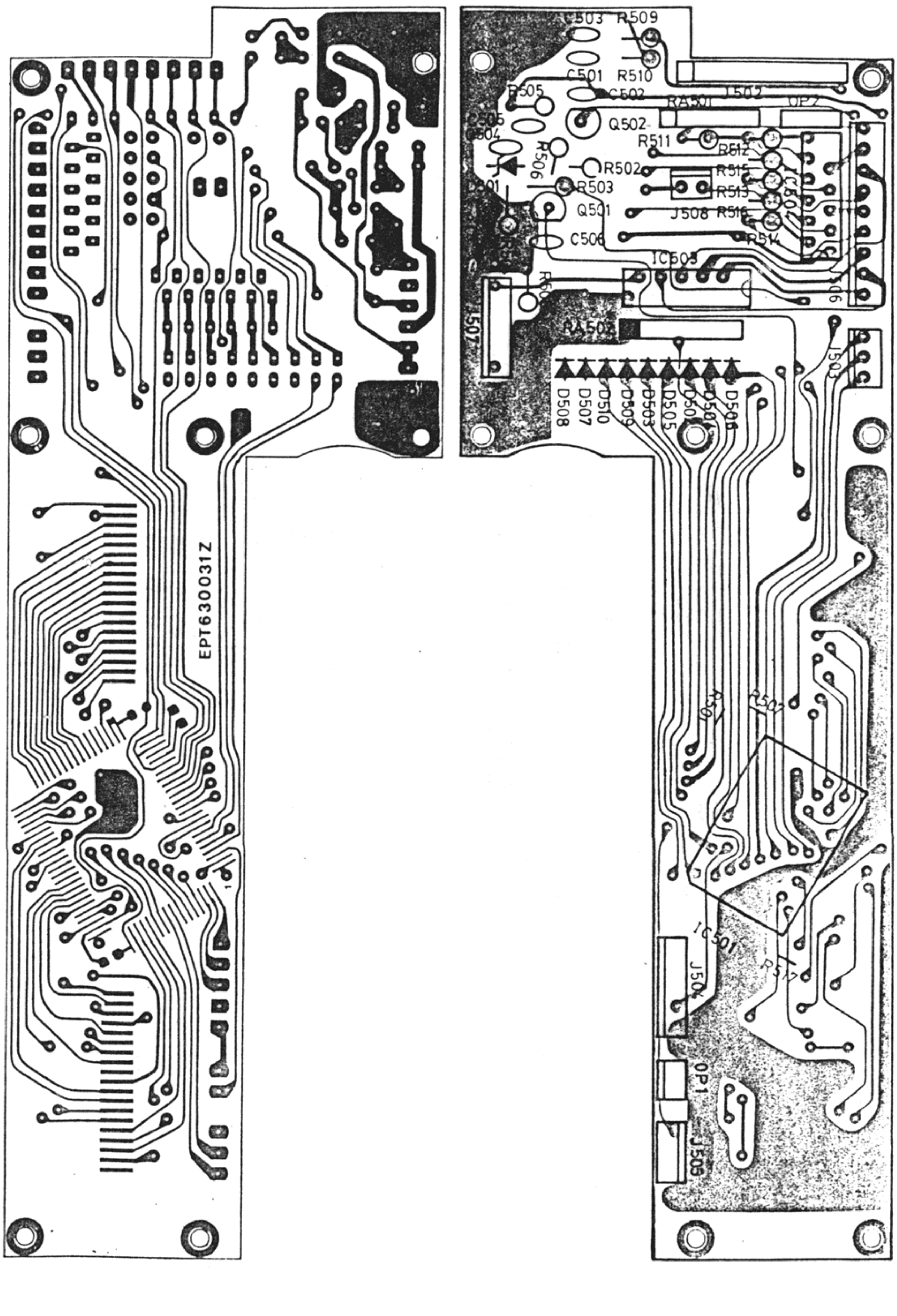


RECEIVER



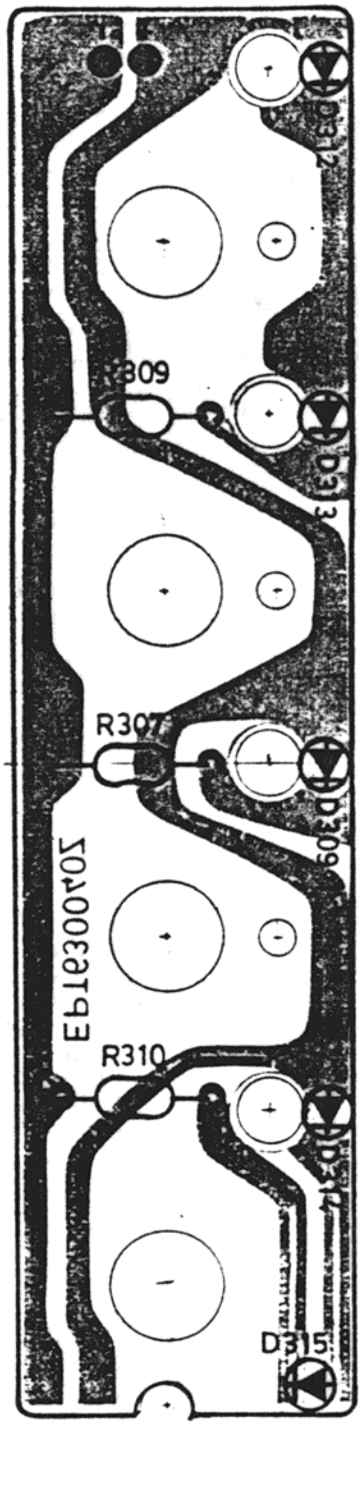
LCD P.C. Board

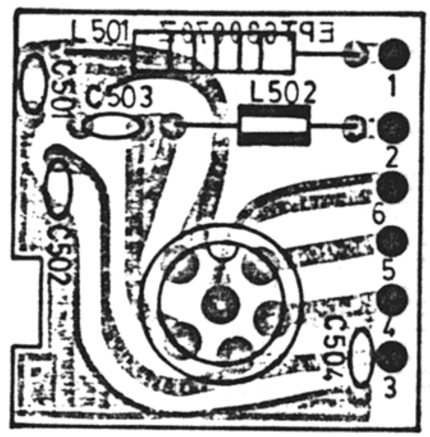




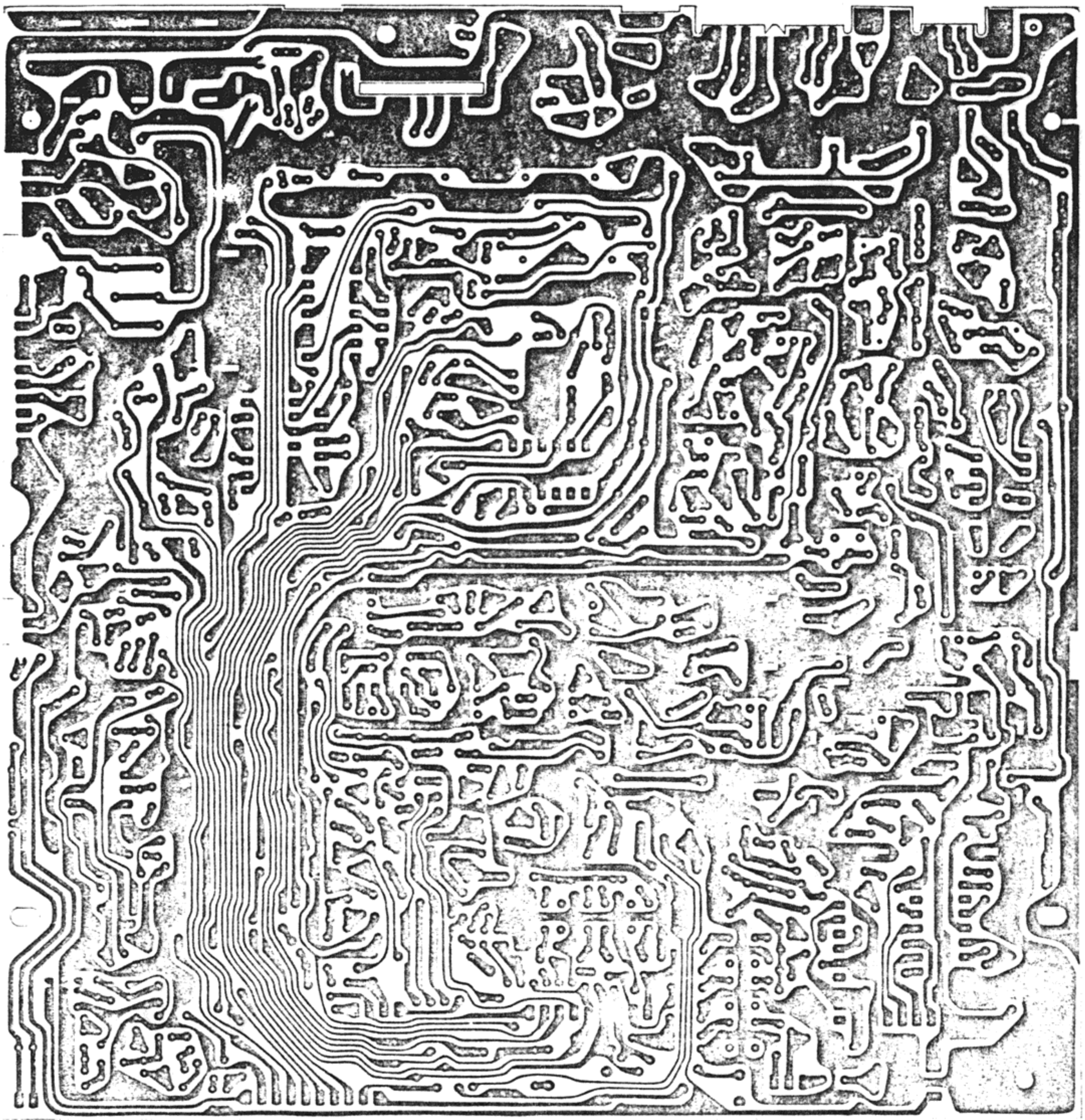
EPT6300031Z
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R509
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R516
C506
R514
IC503
J507
RA502
J503
D508
D507
D510
D509
D503
D505
D506
R507
IC501
R517
J504
OP1
J505

LED, MIC, P.C. Board





Main P.C. Board



Main P.C. Board

